

What is claimed is:

1. A device for oxygenating and filtering blood in an extracorporeal circuit comprising a housing defining first and second interior chambers, the first
5 chamber containing a plurality of microporous filters and having a blood inlet and a blood outlet connected to the first chamber to define a blood flow path along an exterior of the hollow fibers and having a gas inlet and a gas outlet connected to the first chamber to define a gas flow path through the lumens of the hollow fibers, the second chamber containing a filtration membrane and
10 having a blood inlet and a blood outlet connected to the second chamber to define a blood flow path through the filtration membrane, the blood inlet of the second chamber being connected to receive blood from the blood outlet of the first chamber.
- 15 2. An integrated device for oxygenating and filtering blood in an extracorporeal circuit, comprising:
an oxygenator having a housing including a top, a bottom, and a side wall together defining an oxygenation chamber containing a microporous membrane, the housing having a blood inlet and a blood outlet positioned to
20 define a blood flow path along a first side of the microporous membrane and a gas inlet and a gas outlet positioned to define a gas flow path along a second side of the microporous membrane; and
an arterial blood filter having a housing including a top and bottom, a substantially cylindrical outer wall, and a substantially cylindrical inner wall
25 together defining a substantially ring-shaped interior chamber containing a filtration membrane, the inner wall defining a substantially cylindrical opening in the housing of the arterial filter, the housing having a blood inlet connected to the interior chamber on a first side of the filtration membrane and a blood outlet connected to the interior chamber on a second side of the filtration
30 membrane, to define a blood flow path through the filtration membrane, the blood inlet of the arterial filter being connected to the blood outlet of the

oxygenator, the housing of the oxygenator being rigidly connected to the housing of the arterial filter and positioned in the substantially cylindrical opening in the housing of the arterial filter.

- 5 3. An integrated device for use in an extracorporeal blood circuit, comprising:

 a housing defining a first portion and a second portion;

 means for oxygenating blood contained within the first portion of the housing, the oxygenating means including a blood inlet and a blood outlet; and

- 10 means for filtering oxygenated blood, the filtering means having a blood inlet connected to receive blood from the blood outlet of the oxygenating means and a blood outlet.

4. A monolithic device for use in extracorporeal blood circuit, comprising
15 a housing having a blood oxygenator portion and an arterial blood filter portion, the blood oxygenator portion containing a gas exchange membrane and having a blood inlet and a blood outlet defining a blood flow path along a first side of the gas exchange membrane and having a gas inlet and a gas outlet for defining a gas flow path along a second side of the gas exchange
20 membrane, the arterial blood filter portion containing a filtration membrane and having a blood inlet and a blood outlet defining a blood flow path through the filtration membrane, the blood inlet of the arterial blood filter portion being connected to receive blood from the blood outlet of the blood oxygenator portion.

25

5. An arterial blood filter comprising:

 a housing having a top surface, a bottom surface, a substantially cylindrical outer wall and a substantially cylindrical inner wall together defining a substantially ring-shaped interior chamber, the inner wall defining a
30 substantially cylindrical opening from the top surface to the bottom surface of the housing;

a filtration membrane contained within the ring-shaped interior chamber;

a blood inlet; and

- 5 a blood outlet, the blood inlet and blood outlet being positioned on the housing to define a blood flow path through the housing across the filtration membrane.